Patient Education Materials for Diabetes

Excellence in Diabetes Care by the Numbers

The Hospital of Central Connecticut
Center for Metabolic Health

Your Guide To Diabetes Self-Care

Help with finding the answers to your questions:

The Hospital of Central Connecticut
Center for Metabolic Health

What is Diabetes?

Diabetes is a condition where your body is not able to properly use the sugar (glucose) from the food you eat. Your body's cells need glucose for energy; glucose comes from the carbohydrates you eat. A hormone called insulin must be present for glucose to get into the cell to be used as fuel. When you have diabetes your body either does not produce any or enough insulin or the cells do not recognize the insulin. Without insulin the glucose stays in your bloodstream and causes high blood glucose (high blood sugar).

High blood sugar can lead to many health problems.

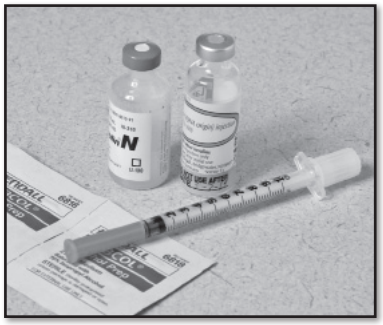
It can affect your heart, kidneys, eyes, feet, digestion, and sexual function.

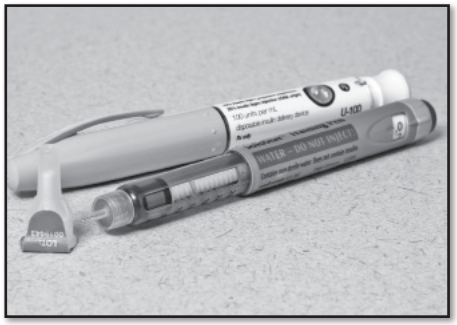
> *The good news ... even if you develop these problems they can often be treated or prevented from getting worse!*

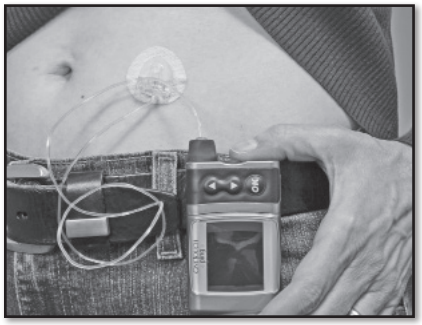
There are different types of Diabetes

Type 1 Diabetes

If you have type 1 diabetes your body **does not make any insulin**. People with this type of diabetes must take insulin every day to survive. Insulin can be taken as daily injections or by using an insulin pump.







Type 2 Diabetes

This type includes **most** people who have diabetes. Your body makes SOME insulin, but not enough, and the cells may not use the insulin properly, this is called **"insulin resistance"**. Treatment usually begins with medications, but can include insulin or other injectable medications. When insulin is added it **doesn't** mean your diabetes is 'bad' or getting worse, or that you have failed.

Gestational Diabetes

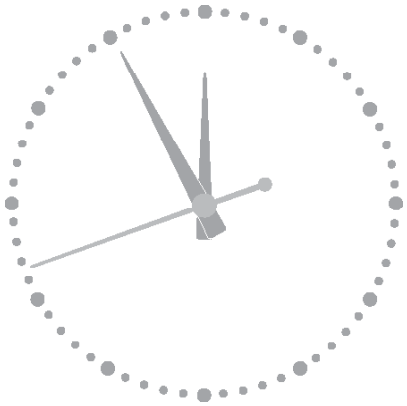
A type of diabetes that develops in pregnancy. Treatment starts with diet and exercise, but can include medications and insulin. It is important to continue to screen for diabetes after the pregnancy, because you are at a greater risk for developing Type 2 diabetes later in life.

How often should I check my Blood Sugars?

Your provider (MD, APRN, PA, etc.) will tell you how many times to check.

The best times to check are:

Before meals, 2 hours after a meal, or at bedtime.



There may be times that you may need to check your blood sugar more often than usual. This is when you are sick, pregnant, changing or adding medications, or have been experiencing high or low readings.

… and what should my readings be?

Before a meal: 70-130 mg/dl

2 hours after a meal: <140-180 mg/dl

These target ranges may be different for each person.

Ask your provider for YOUR specific target ranges.

The only way to know if your diabetes treatment is working is by checking your blood sugar level.

Checking your Blood Sugars at home

To check your blood sugars at home you will need a glucose meter along with testing strips and lancets.

- To begin wash your hands with soap and water.
- Turn on the glucose meter and place the test strip into the meter. In many units placing the test strip into the unit will turn it on.
- Choose a finger and prick using your lancing device.
  - Pick a different finger each time and don't prick at the tip or on the pad of the finger, these areas can become sore.
- Massage your finger in an upward stroke to bring a drop of blood to the surface.
- Bring the drop of blood to the test strip.
- The glucose meter will provide a reading of your blood sugar.
- Record your readings in a logbook and bring your meter and logbook to your doctor's visits.

Questions on your meter?

Call the **1-800 phone number** on the back of your meter for technical assistance.

What if my sugar gets out of control?

High Blood Sugar

(Usually defined as a sugar greater than 140 mg/dl before a meal OR greater than 180 mg/dl 2 hours after a meal)

Also known as 'hyperglycemia'

- Can be caused by eating too much, taking too little diabetes medication, or being sick.
- You may notice increased thirst, urination, feel tired and hungry, and have blurry vision, or feel nothing at all.

extreme thirst

frequent urination

dry skin

hunger

blurred vision

drowsiness

nausea

Steps to Care for High Blood Sugar:

- Drink plenty of water or sugar-free beverages
- Check your sugar more often.
- Look for a pattern to try to figure out causes.

Be aware that you may not have symptoms and still have high blood sugar ...check your sugar daily

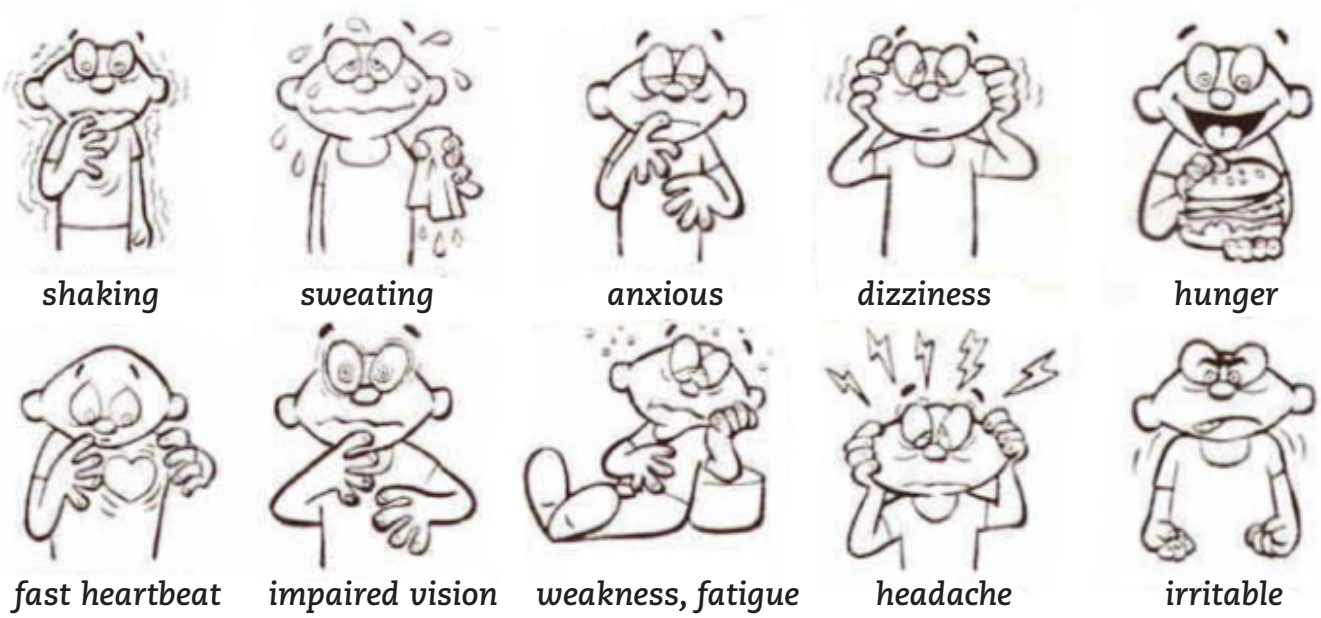
Low Blood Sugar
(less than 70 mg/dl)

Also known as 'hypoglycemia', needs to be treated it right away!

Can be caused by:

- too much diabetes medicine
- eating too little or too late
- drinking alcohol
- exercising too much

You may feel shaky, sweaty, dizzy, weak, hungry, nervous, or grouchy.



shaking *sweating* *anxious* *dizziness* *hunger*

fast heartbeat *impaired vision* *weakness, fatigue* *headache* *irritable*

Don't be surprised if your blood sugars are not always well controlled.

- The goal is to keep highs and lows to a minimum.
- Call your provider if you blood sugar is often greater than 180 mg/dl or you have any unexplained readings less than 70 mg/dl.
- Your treatment plan may need adjusting.

What to do if you think your sugar is low:

1. Sit down, stop what you are doing. Do NOT drive.
2. Check your blood sugar, if less than or near 70, treat it immediately. If you can't check it, and you think it is low, treat it anyway.
3. Eat or drink 15 grams of fast acting sugar source:
   - 1/2 cup regular fruit juice OR 6 oz. regular soda (NOT diet), or
   - 1 cup skim or low-fat milk, or
   - 3-4 glucose tablets (you may purchase at pharmacy), or
   - 7 gummy or 8 regular Life Savers

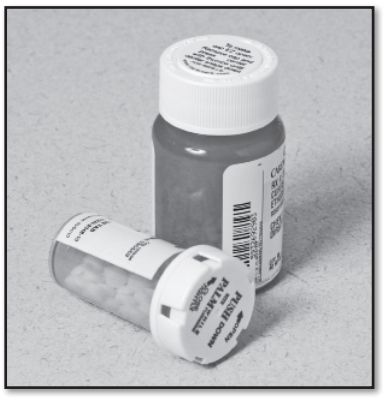
   No chocolate, peanut butter or other high-fat foods. They don't raise your sugar fast enough.
4. Recheck blood sugar in 10-15 minutes after treating.

If blood sugar is still less than 70 repeat treatment every 15 minutes until sugar is greater than 70.

Safety Tips ...

- If you have Type 1 or Type 2 Diabetes and are on insulin, discuss getting a Glucagon prescription from your doctor. This can be a lifesaving measure if you become unconscious or can't treat your low sugar by mouth.
- Be sure to wear diabetes identification at all times (necklace, bracelet, etc.)
- Carry a form of glucose with you **AT ALL TIMES** so you are ready to treat any lows!

Diabetes medications:
They only work if you take them.



Pills:

- Are used only for Type 2 Diabetes.
- Are NOT the same as insulin.

Tips on taking Diabetes medications:

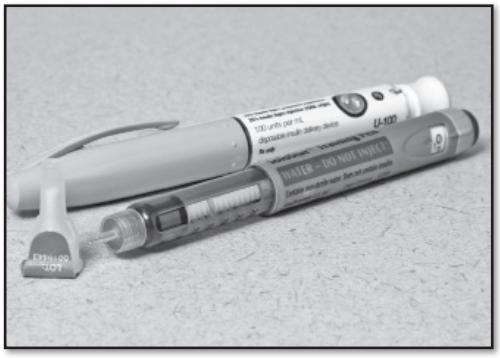
- Take only the dose prescribed and at the recommended times.
- Some medications need to be taken either before or after a meal. Check with your pharmacist or provider on the best time(s) to take your medications.
- If you miss a medication dose, check your glucose levels closely and call your provider for instructions.
- The diabetes medications you take may change over time.

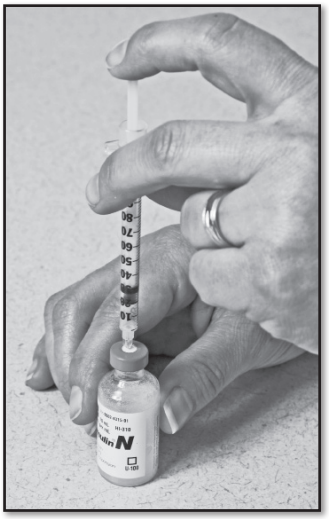
What is insulin?

Insulin is a hormone made in your pancreas that helps bring sugar (glucose) from your blood stream into your cells, where it turns into energy.

How is insulin taken?

Insulin needs to be injected and comes in either a pre-filled pen or in a bottle.





How do I store my insulin?

- Insulin vials and pre-drawn syringes need to be stored in the refrigerator.
- Insulin pens, before they are opened also need to be stored in the refrigerator.
- Insulin pens after opening can be stored at room temperature for 28 days; however this can vary by brand.

Disposal of Insulin Syringes and Pen Needles:

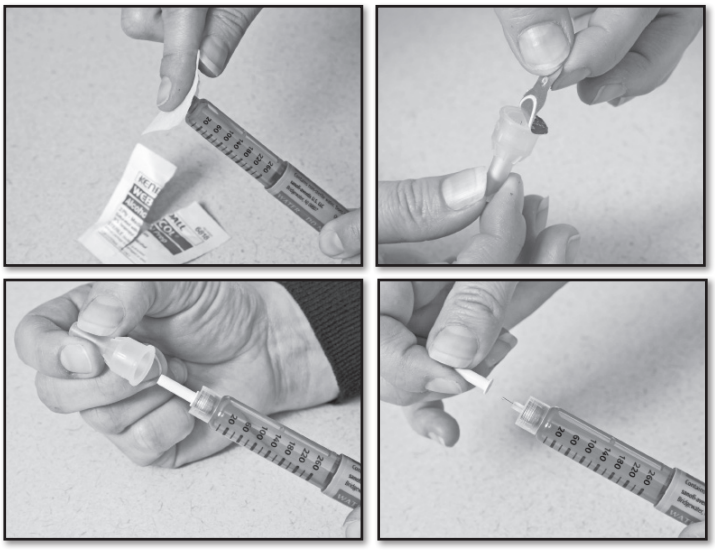
- Check with your local or state board of health
- **DO NOT** throw directly into regular trash or recycling!

Using a pre-filled insulin pen

You Will Need: Your pre-filled insulin pen, pen needle and alcohol wipe.

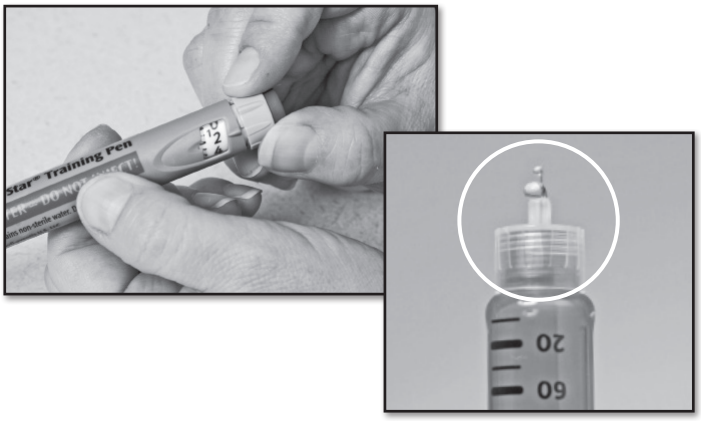
Get the Pen Ready

1. Wipe tip of pen with alcohol.
2. Tear off paper tab from needle.
3. Screw needle onto pen
4. Remove caps off the needle



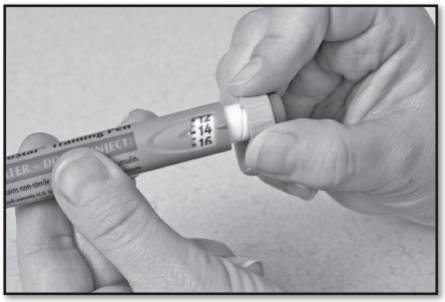
Prime the Pen

5. Turn pen dial until you see a '2' in the dose window.
6. Hold pen needle facing up. Push button in (on end of pen).
7. Look for a drop of insulin at the tip. If no drop, repeat steps 5 and 6 until you see a drop.



Dial Your Dose

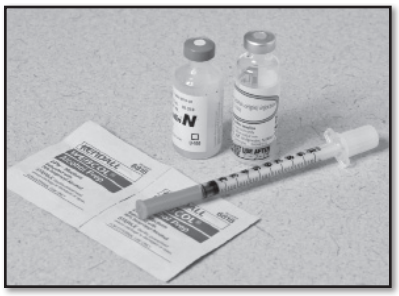
8. Turn the pen dial to your dose.

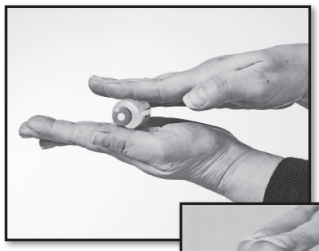


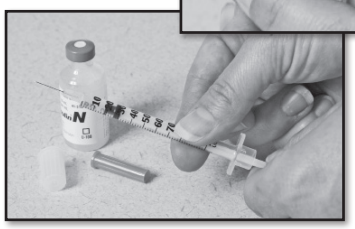
Drawing up insulin into a syringe

You will need:

A syringe, insulin bottle & alcohol wipe







1. If using a cloudy insulin roll the bottle of insulin until mixed (no rolling is needed if using clear insulin)

2. Wipe top of bottle with alcohol wipe.

3. Take caps off needle and plunger.

   Pull plunger down to the number of units you will need.

4. With bottle on table, put needle into bottle.

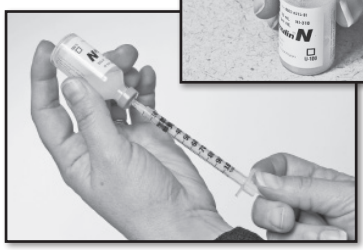
   Push plunger down to push air into bottle.

5. Turn bottle upside down.

6. Pull plunger down to draw insulin into the syringe.

7. Push insulin back into bottle. Pull plunger to the number of units you need.

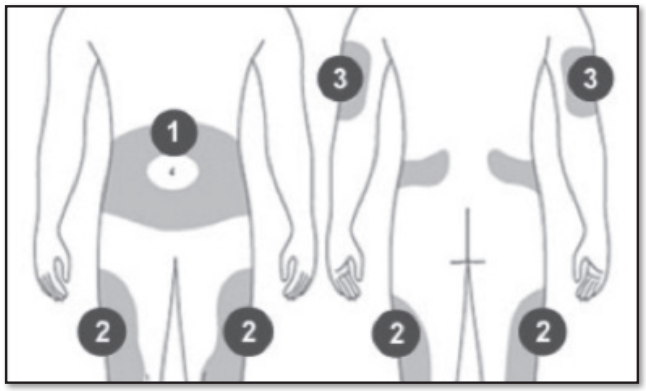
8. Check for air bubbles. If air bubbles are seen in syringe, push insulin back into bottle and repeat steps 7 & 8.



Injecting insulin

Choose The Injection Site:

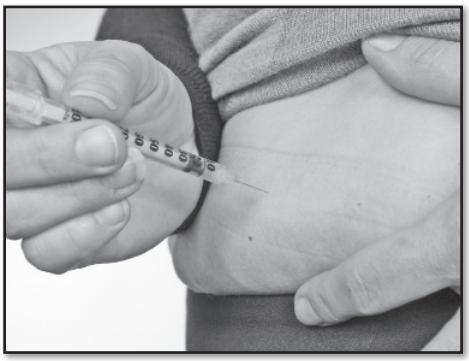
1. **Stomach (at least 2 inches from belly button, scars and moles).
2. ** Middle or outer part of thigh, at least 4 inches above knee and at least 4 inches down from top of leg.
3. The back of the arm may be used, but it is not a preferred site, it is hard to get to the right spot when injecting yourself.



Change sites often to avoid scar tissue build-up

Injection using a pen or syringe

- Pinch up skin if needed (if you are very thin)
- Push needle straight into skin (at 90 degree angle)
- Press dose button or plunger down firmly until it stops.
- Hold needle in skin for 10 seconds. Remove needle from skin.
- If pen, place large cap on needle; turn counterclockwise to remove needle from pen



Read your specific pen's package insert for more information about your pen

What are carbohydrates?

... and why are they so important?

Sugar (glucose) is the main source of fuel for your body. We get this sugar from the foods we eat, mostly from carbohydrates. Carbohydrates are found in foods like bread, grains, cereals, pasta, rice, starchy vegetables (potatoes, corn, peas, beans), fruit and juices, milk, yogurt, and sweets (cookies, ice cream, syrup, jams). Proteins and fats are also found in the food we eat, but have little effect on blood sugars.

Healthy eating tips:

- Eat a variety of foods from all the food groups.
- Eat about the same amount of carbohydrate at each meal, this helps keep your blood sugars more stable.
- Eat at regular times. Don't skip meals.
- Eat less if you want to lose weight.

How many servings of carbohydrates should I eat?

1 carbohydrate serving is 15 grams

Breakfast;

2-3 servings (30-45 grams)

Lunch and Dinner:

3-4 servings (45-60 grams)

Snack:

If needed, 1-2 servings (15-30 grams) This is an average for most individuals.

Using Food labels:

- Find the serving size at the top of the label
- Decide how much you will eat
- Find the total carbohydrates per serving
- 1 carbohydrate serving is 15 grams
- Dietary fiber and sugar are part of the total carbohydrate

Serving Size

15 grams of Carbohydrate per serving

Starches:

1 slice of bread or a small roll

1/3 cup cooked rice or pasta

1/2 cup peas, corn, potato

3/4 cup cereal

Fruit:

1 small fruit

1/2 cup juice

Dairy:

1 cup milk

3/4 cup light yogurt

Sweets:

2 small cookies

1/2 cup ice cream

1 Tbsp. jam, sugar, syrup

Nutrition Facts

Serving Size 1/2 cup (57g)
Servings Per Container 15

Amount Per Serving

Calories 230 Calories from Fat 100

	% Daily Value*
Total Fat 11g	**17%**
Saturated Fat 2g	**10%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 95mg	**4%**
Total Carbohydrate 32g	**11%**
Dietary Fiber 3g	**12%**
Sugars 18g	
Protein 5g	

Vitamin A 0% • Vitamin C 0%

Calcium 4% • Iron 10%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less Than	65g	80g
Saturated Fat	Less Than	20g	25g
Cholesterol	Less Than	300mg	300 mg
Sodium	Less Than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

A Registered Dietitian (RD) can help you develop your meal plan.

Be physically active

Activity is great medicine.

- Lowers blood sugar by helping insulin work
- Good for your heart, lowers blood pressure and cholesterol
- Helps with weight loss by burning calories
- Helps you feel better overall by increasing energy levels

Tips on how to increase physical activity:

- Walk instead of drive
- Don't use the drive-through
- Park further away from a building.
- Use the stairs instead of the elevator
- Swimming, walking, biking, dancing, playing sports, or using exercise equipment are all excellent options.

Aim for doing something extra every day!

Exercise/Physical Activity Resources:

- Good Life Center (860) 224-5433
- YMCA: Many have sliding-scale payment plans
- Your Health Insurance Carrier: Call member services on your insurance card to see if your plan may cover a gym membership (or a portion of).

Before starting any activity program check with your provider.

Know your number … The A1C test

It is recommended that everyone with diabetes have a blood test called a hemoglobin A1C. This test gives a number that tells you the average glucose (blood sugar) levels over the past 2-3 months. It is reported as a %.

The A1C helps plan your treatment and can help predict your risk for possible diabetes-related health problems. The goal for most people is less than 7.0%.

A1C (%)	**eAG (mg/dl) = 'estimated average glucose' range**
5	97
5.5	111
6	126
6.5	140
7 = Goal for Most Diabetic People	**154**
7.5	169
8	183
8.5	197
9	212
9.5	226
10	240
10.5	255
11	269
11.5	283
12	298

Ask your doctor or nurse to write your A1C result here before you leave the hospital: _____ /_____ (result/date)

Getting sick

You need to take extra care of yourself when you have diabetes and any illness can cause your sugar to go out-of-control.

Colds, upset stomach, flu, surgery, emotional stress, infection, or any injury.

Sick day 'rules'

1. Always take your diabetes medication unless your health care provider tells you not to.
2. Check your sugar 4 times a day for mild sickness, every 3-4 hours for more severe sickness. When you are sick, your blood sugar can get high very quickly!
3. Be on the safe side and call your doctor right away for:
   - constant nausea or diarrhea
   - vomiting or inability to keep fluids down
   - blood sugar levels over 250 for more than 2 readings
   - low blood sugar levels
   - fever lasting more than 24 hours
   - abdominal (stomach) pain
   - if you are unsure what to do

If you have Type 1 Diabetes and your sugar is over 250 consistently, you will need to check your urine for something called ketones. Ketones appear in your urine when you don't have enough insulin working in your body. To check for them you will need to purchase ketone strips in the pharmacy. The pharmacist can explain how to use them. Treating ketones early can prevent a life-threatening complication called Diabetic Ketoacidosis (DKA) and keep you out of the hospital. Call your provider if you have any ketones.

Know when Diabetes is an emergency

If you have ANY of these symptoms:

- Trouble breathing
- Abdominal pain
- Cannot hold fluids down for 12 hours
- Too weak to get out of bed
- Blood sugar above 500 mg and/or ketones in urine

Go to the Emergency Department at your hospital right away or **call 911!**

Follow-up, what are my resources?

- You are the most important part of your health care team.
- Your team also includes your providers (MD/APRN/PA), Endocrinologist, Certified Diabetes Educators (C.D.E.'s), nurses, dietitians, & pharmacists
- Outpatient Diabetes Self-Management Classes: The Hospital of Central Connecticut Center for Metabolic Health, call 1-888-456-7546, individual or group classes with nurses and dietitians
- Most hospitals hold outpatient classes for comprehensive diabetes self-management. Contact your local hospital for class information.
- Local VNAs (Visiting Nurse Agencies)
- CT Center for Healthy Aging

Websites:

- The Hospital of Central Connecticut: **www.thocc.org**
- Joslin Diabetes Center: **www.joslin.org**
- American Diabetes Association: **www.diabetes.org**
- Academy of Nutrition and Dietetics: **www.eatright.org**
- U.S. Department of Health and Human Services: **www.os.dhhs.gov**
- Diabetes Self-Management: **www.diabetesselfmanagement.com**
- Juvenile Diabetes Research Foundation: **www.jdrf.org**

i-Phone applications and websites:

- Glucose Buddy: **www.glucosebuddy.com**
- GoMeals: **www.gomeals.com/default.asp**
- DLife: **www.dlife.com**

Diabetes support groups

- Diabetes Support Group (evening):

  Call **1-888-456-7546** for dates and times
- Call your state American Diabetes Association CT affiliate for additional groups: **(203) 639-0385**

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